DSBL Capstone

# Step 0 - Introduction. 100-day Data Science Plan: Build a Data Science Strategy

Upon assuming a new leadership role within a company (whether from an internal move or joining the company anew), it is common for an executive to be asked to prepare a plan for their first 100 days in the job.

As part of this project, you will build/create the following:

1. Identification of six data science opportunities for the organization
   1. Opportunities must be spread across three different functional areas
   2. Detail the risks, challenges, and key factors for success for each of these opportunities
2. Prepare a roadmap for executing these six data science opportunities.
   1. Rack and stack evaluation of these opportunities
3. Prepare a Human Capital plan for your data science organization
4. Prepare a Technical plan for your data science organization
   1. Data and Data Architecture Strategy
   2. Machine Learning Architecture

The work product for this Capstone project will be a detailed presentation to the CEO, detailing your plan and the rationale behind your decisions.

This project asks you to prepare that 100-day data science plan for a company of your choosing; this could be your current company or some other existing company.

**Name of Company Chosen:** [insert name here]

**Brief Company Description:** [provide company detail here]

# Step 1 - Identify Data Science Opportunities in the Business

Throughout the course, you have been exposed to multiple examples of data science projects implemented in a business setting. Now, based on your knowledge of your specific business context, you will generate six potential projects to be considered by the executive leadership team. These projects must span three unique functional areas of the business, with any one functional area representing no more than 3 projects:

Acceptable Project Mixes

\* 2 marketing + 2 supply chain + 2 finance

\* 2 marketing + 1 human resources + 1 procurement + 1 product + 1 manufacturing

\* 3 finance + 1 legal + 2 marketing

Unacceptable Project Mixes:

\* 3 marketing + 3 finance

\* 4 marketing + 1 product + 1 manufacturing

**Please identify your six projects here:**

**Project 1:** [Insert Project Name]

**Project 2:** [Insert Project Name]

**Project 3:** [Insert Project Name]

**Project 4:** [Insert Project Name]

**Project 5:** [Insert Project Name]

**Project 6:** [Insert Project Name]

**Note: You may choose to represent this information on slide 5 of the CEO Presentation Template**

**For each candidate project, please provide the following detail:**

**Project 1 Name:** [Place answer here]

**Business Functional Area:** [Place answer here]

**1. Description of the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (revenue? customer acquisition? cost reduction?):**

- Business Problem Addressed: [Place answer here]

- Role of data science in addressing the business problem: [Place answer here]

- Targeted business objective(s): [Place answer here]

**2. Data Science Classification**

- Approach: [Place answer here]

- Type of Model: [Place answer here]

**3. Data needed for project and sources for that data**

[Place answer here]

**4. Magnitude of opportunity (with justification)**

[Place answer here]

**5. Cost and complexity of development and implementation**

[Place answer here]

**6. Likelihood of value capture (Low/Medium/High) with justification**

[Place answer here]

**7. Key Business Stakeholders**

[Place answer here]

**For each candidate project, please provide the following detail:**

**Project 2 Name:** [Place answer here]

**Business Functional Area:** [Place answer here]

**1. Description of the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (revenue? customer acquisition? cost reduction?):**

- Business Problem Addressed: [Place answer here]

- Role of data science in addressing the business problem: [Place answer here]

- Targeted business objective(s): [Place answer here]

**2. Data Science Classification**

- Approach: [Place answer here]

- Type of Model: [Place answer here]

**3. Data needed for project and sources for that data**

[Place answer here]

**4. Magnitude of opportunity (with justification)**

[Place answer here]

**5. Cost and complexity of development and implementation**

[Place answer here]

**6. Likelihood of value capture (Low/Medium/High) with justification**

[Place answer here]

**7. Key Business Stakeholders**

[Place answer here]

**For each candidate project, please provide the following detail:**

**Project 3 Name:** [Place answer here]

**Business Functional Area:** [Place answer here]

**1. Description of the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (revenue? customer acquisition? cost reduction?):**

- Business Problem Addressed: [Place answer here]

- Role of data science in addressing the business problem: [Place answer here]

- Targeted business objective(s): [Place answer here]

**2. Data Science Classification**

- Approach: [Place answer here]

- Type of Model: [Place answer here]

**3. Data needed for project and sources for that data**

[Place answer here]

**4. Magnitude of opportunity (with justification)**

[Place answer here]

**5. Cost and complexity of development and implementation**

[Place answer here]

**6. Likelihood of value capture (Low/Medium/High) with justification**

[Place answer here]

**7. Key Business Stakeholders**

[Place answer here]

**For each candidate project, please provide the following detail:**

**Project 4 Name:** [Place answer here]

**Business Functional Area:** [Place answer here]

**1. Description of the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (revenue? customer acquisition? cost reduction?):**

- Business Problem Addressed: [Place answer here]

- Role of data science in addressing the business problem: [Place answer here]

- Targeted business objective(s): [Place answer here]

**2. Data Science Classification**

- Approach: [Place answer here]

- Type of Model: [Place answer here]

**3. Data needed for project and sources for that data**

[Place answer here]

**4. Magnitude of opportunity (with justification)**

[Place answer here]

**5. Cost and complexity of development and implementation**

[Place answer here]

**6. Likelihood of value capture (Low/Medium/High) with justification**

[Place answer here]

**7. Key Business Stakeholders**

[Place answer here]

**For each candidate project, please provide the following detail:**

**Project 5 Name:** [Place answer here]

**Business Functional Area:** [Place answer here]

**1. Description of the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (revenue? customer acquisition? cost reduction?):**

- Business Problem Addressed: [Place answer here]

- Role of data science in addressing the business problem: [Place answer here]

- Targeted business objective(s): [Place answer here]

**2. Data Science Classification**

- Approach: [Place answer here]

- Type of Model: [Place answer here]

**3. Data needed for project and sources for that data**

[Place answer here]

**4. Magnitude of opportunity (with justification)**

[Place answer here]

**5. Cost and complexity of development and implementation**

[Place answer here]

**6. Likelihood of value capture (Low/Medium/High) with justification**

[Place answer here]

**7. Key Business Stakeholders**

[Place answer here]

**For each candidate project, please provide the following detail:**

**Project 6 Name:** [Place answer here]

**Business Functional Area:** [Place answer here]

**1. Description of the project (including business problem to be addressed, how data science will address that business problem, and the targeted business objective (revenue? customer acquisition? cost reduction?):**

- Business Problem Addressed: [Place answer here]

- Role of data science in addressing the business problem: [Place answer here]

- Targeted business objective(s): [Place answer here]

**2. Data Science Classification**

- Approach: [Place answer here]

- Type of Model: [Place answer here]

**3. Data needed for project and sources for that data**

[Place answer here]

**4. Magnitude of opportunity (with justification)**

[Place answer here]

**5. Cost and complexity of development and implementation**

[Place answer here]

**6. Likelihood of value capture (Low/Medium/High) with justification**

[Place answer here]

**7. Key Business Stakeholders**

[Place answer here]

# Step 2 - Developing a Roadmap: Prioritizing Data Science Opportunities in the Business

A strategic approach to data science requires the business to consider the relative opportunities, costs, and risks of potential projects to identify the best order to carry out the projects. What should be tackled first? What is best pushed off until later? Completing the Data Science Roadmap requires stepping through key considerations to determine which project(s) should be considered ‘top priority’ and at what pace these and subsequent projects should be initiated.

**1. Complete this “Rack and Stack Exercise” worksheet to determine the relative strategic alignment, cost, complexity of implementation, certainty of value capture, and magnitude of benefit for each of the six projects**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Direct Alignment with Strategic Goals?** | **Cost** | **Complexity of Implementation** | **Certainty of Value Capture** | **Magnitude of Benefit** |
|  | 1=Low; 5=High | 1=High; 5=Low | 1=High; 5=Low | 1=Low; 5=High | 1=Small; 5=Large |
| **Project 1:**  **[Insert Name]** | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] |
| **Project 2:**  **[Insert Name]** | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] |
| **Project 3:**  **[Insert Name]** | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] |
| **Project 4:**  **[Insert Name]** | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] |
| **Project 5:**  **[Insert Name]** | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] |
| **Project 6:**  **[Insert Name]** | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] | [Insert Ratings] |

**Note: You may choose to represent this information on slide 8 of the CEO Presentation Template**

**Please complete Step 2, Part 2, the Data Science Opportunity Matrix, using slide 1 of the CEO Presentation Template (You may or may not decide to include this slide as part of your CEO presentation)**

**Step 2, Part 3: Complete the table below by referencing the first four data science projects chosen for implementation. Include your justification for each project's order of implementation (e.g., how will the third project benefit from being implemented after the completion of the first two projects?)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Project Order** | **Project Title** | **Order Justification** | | | | | |
| 1 | [Insert Project Title] | [Insert Response] | | | | | |
| 2 | [Insert Project Title] | [Insert Response] | | | | | |
| 3 | [Insert Project Title] | [Insert Response] | | | | | |
| 4 | [Insert Project Title] | [Insert Response] | | | | | |

**Note: You may choose to represent this information on slides 6 and 7 of the CEO Presentation Template**

# Step 3 - Establishing a Data Science Human Capital Strategy for your Data-driven Business

Now that we have established a roadmap for carrying out data science projects, our attention must turn to building and configuring the organization we will leverage to carry out this roadmap. The Data Science Human Capital Plan completed in this step will cover the organizational structure and talent configuration best suited to carry out the business’s roadmap, as well as the activities that the organization in particular -- and business more broadly -- must complete in order to promote a data-driven culture throughout the business.

**1. Identify the organizational model best suited for the data science organization that your business will need to deliver on the roadmap completed in Step 2. Provide justification for your selection based on the needs, scope, and timing of projects to be implemented in the Data Science Roadmap. If your organization should start with one model and evolve toward a different model, you may provide that detail and justification in your response.**

**Organizational Model:** [Place Answer Here]

**Justification:**

[Place Answer Here]

**2. Complete the “Human Capital Plan” Worksheet for your data science organization.**

**- Identify the first ten professional roles for which you would recruit. How would you organize these roles into teams within the organization?**

For example, if you had 4 data scientists split evenly into two teams, your response would look like this:

|  |  |  |
| --- | --- | --- |
|  | **Position** | **Team** |
| 1 | Data Scientist | 1 |
| 2 | Data Scientist | 1 |
| 3 | Data Scientist | 2 |
| 4 | Data Scientist | 2 |

Identify your roles and teams below:

|  |  |  |
| --- | --- | --- |
|  | **Position** | **Team** |
| 1 | [Insert Response] | [Insert Response] |
| 2 | [Insert Response] | [Insert Response] |
| 3 | [Insert Response] | [Insert Response] |
| 4 | [Insert Response] | [Insert Response] |
| 5 | [Insert Response] | [Insert Response] |
| 6 | [Insert Response] | [Insert Response] |
| 7 | [Insert Response] | [Insert Response] |
| 8 | [Insert Response] | [Insert Response] |
| 9 | [Insert Response] | [Insert Response] |
| 10 | [Insert Response] | [Insert Response] |

**Note: You may choose to represent this information on slide 9 of the CEO Presentation Template**

**Assume that leadership will allocate four new FTE’s for your data science organization during the current fiscal year. How would you prioritize your organizational buildout?**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Order of Hire** | **Position** | **Justification** | | | | | |
| 1 | [Insert Response] | [Insert Response] | | | | | |
| 2 | [Insert Response] | [Insert Response] | | | | | |
| 3 | [Insert Response] | [Insert Response] | | | | | |
| 4 | [Insert Response] | [Insert Response] | | | | | |

**Craft a “Data-Driven Transformation Strategy” by identifying six specific initiatives that you would recommend the data science organization and/or the business undertake in order to promote a data-driven culture across the business.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Strategy** | | | | | | |
| 1 | [Insert Response] | | | | | | |
| 2 | [Insert Response] | | | | | | |
| 3 | [Insert Response] | | | | | | |
| 4 | [Insert Response] | | | | | | |
| 5 | [Insert Response] | | | | | | |
| 6 | [Insert Response] | | | | | | |

**Note: You may choose to represent this information on slide 10 of the CEO Presentation Template**

# Step 4 - Establishing the Technical Infrastructure to Support the Data Science Organization

With a completed Data Science Roadmap and a Human Capital Plan for executing the data science strategy, we turn our attention to the technological capabilities that must be built to support the new Data Science organization.

Complete the table on the next page by entering strategic aspects your business might consider to meet its Data and Data Architecture needs.

**Data and Data Architecture Strategy for the business**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Component** | | **Strategy** | | | | | | |
| Data Requirements | What data should be included in the Data Strategy? | [Insert Response] | | | | | | |
| Data Governance | How will we promote data availability? (provide at least two ideas) | [Insert Response] | | | | | | |
| How will we promote usability? (provide at least two ideas) | [Insert Response] | | | | | | |
| How will we guarantee integrity? (provide at least two ideas) | [Insert Response] | | | | | | |
| How will we guarantee security? (provide at least two ideas) | [Insert Response] | | | | | | |
| Technology | Identify the components of your Data Architecture | [Insert Response] | | | | | | |
| Skills and Capacity | How will we promote development of data literacy skills and capacity throughout the organization (provide at least three ideas) | [Insert Response] | | | | | | |
| Support for Machine Learning | Give a brief description of the machine learning architecture and how it will interface with the data architecture | [Insert Response] | | | | | | |

**Note: You may choose to represent this information on slide 11 of the CEO Presentation Template**

# Step 5 (OPTIONAL) - Record a short video of you presenting your final slide deck to your CEO or Executive Committee (5 minutes)

You may wish to submit a short video of you presenting your final presentation to your CEO; while this is not a formal requirement for the Capstone project, it does provide an outstanding way to gain practice with communicating about data science in business contexts.